

5                    **METHOD AND SYSTEM USING ACOUSTIC EJECTION FOR**  
                     **PREPARING AND ANALYZING A CELLULAR SAMPLE SURFACE**

**ABSTRACT OF THE DISCLOSURE**

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                     The invention relates to a method and system for acoustically depositing a fluid  
                     on a surface of a cell sample. A reservoir containing a fluid is provided, and the cell  
                     sample surface is positioned in droplet-receiving relationship to the reservoir. Once the  
                     reservoir and the cell sample surface are appropriately positioned, focused acoustic  
15                    energy is applied to eject a droplet of the fluid from the reservoir. As a result, the droplet  
                     is deposited on the sample surface at a designated site. Optionally, the fluid may be an  
                     analysis-enhancing fluid that contains a label moiety or a mass- spectrometry matrix  
                     material. When an analysis-enhancing fluid is used, the sample is typically subjected to  
                     conditions effective to allow the analysis-enhancing fluid to interact with the sample  
20                    surface so as to render the sample surface suitable for analysis. Then, the sample may be  
                     analyzed at the designated site.